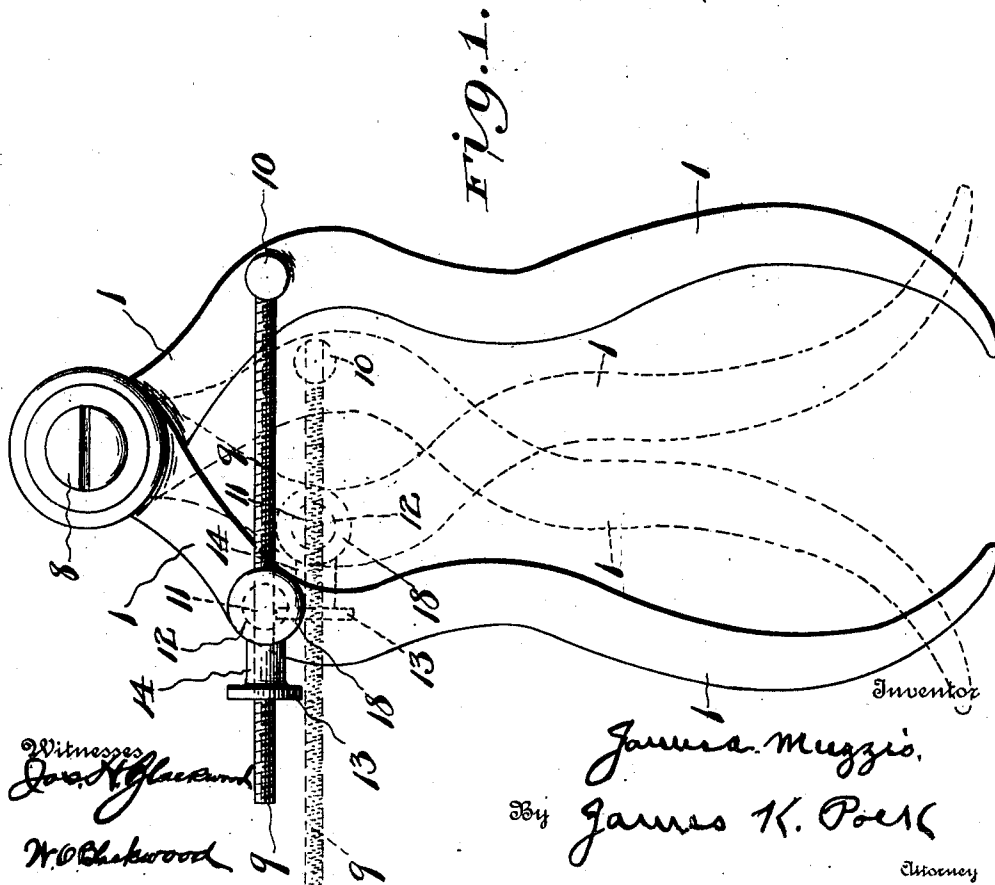
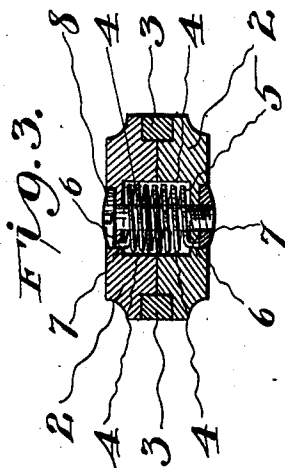
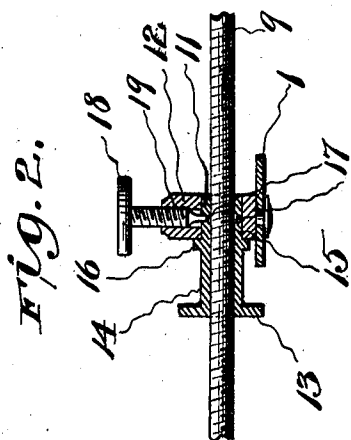


J. A. MUZZIO.
CALIPERS.
APPLICATION FILED APR. 20, 1910.

988,588.

Patented Apr. 4, 1911.



UNITED STATES PATENT OFFICE.

JAMES A. MUZZIO, OF CLYDE, OHIO.

CALIPERS.

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Specification of Letters Patent.

Patented Apr. 4, 1911.

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To all whom it may concern:

Be it known that I, JAMES A. MUZZIO, a citizen of the United States, and a resident of Clyde, in the county of Sandusky and State of Ohio, have invented certain new and useful Improvements in Calipers, of which the following is a specification.

My invention relates to calipers, compasses, dividers, and the like; and it has for its object the provision of improved means for setting the instrument and locking it in a set position, and also in the provision of a spring in the joint that tends normally to open the arms of the instrument when the setting means is released.

My invention will be described in detail hereinafter and illustrated in the accompanying drawings, in which—

Figure 1 is a view in elevation of calipers showing my improvements in position, the arms being shown in full lines arranged for making outside measurements, while in dotted lines the arms are shown arranged to make inside measurements; Fig. 2, a detail view, partly in section, of the setting mechanism; and Fig. 3, a cross-section of the joint.

In the drawings similar reference characters indicate corresponding parts throughout all of the views.

The arms 1 of the instrument have their jointed portions formed with circular bosses 2 that fit into a ring 3, each boss 2 being formed with a central circular socket 4, which with the corresponding socket in the other boss constitutes a chamber to receive a coil-spring 5, having its two ends pointed outwardly, as shown at 6, and engaging holes 7 in the arm. 8 indicates the pivot-pin or bolt to hold the two arms in place in the ring. As the tendency of the spring 5 is to spread the arms 1, it will be understood that when pressure on the arms is released they will open and remain so until closed.

9 indicates a threaded rod secured to a pin 10, swivelly mounted on one arm 1, and passing through a hole 11 in pin 12, swivelly secured to the other arm 1, and 13 a thumb-screw nut having a tubular shank 14, interiorly threaded to engage rod 9, and having a bearing portion 15, that fits into hole 11 in pin 12, 16 indicating an annular shoulder that engages the pin, so that by rotating the

nut to screw it onto the rod it will be apparent that the arms 1 will be moved toward one another against the resistance of the spring 5. Bearing 15 is formed with a circumferential groove 17, and 18 is a set screw engaging a threaded hole 19 in the top of pin 12 and formed with an elongated and reduced portion that engages the groove 17 to prevent withdrawal of the thumb-nut 13 from hole 11 when desired, and by screwing the set-screw down tightly the thumb-nut will be held from turning so as to lock the arms in a set position.

I have shown and described my invention as applied to calipers, but it will be apparent that without any material changes it may be adapted to use on compasses and dividers, so that I do not limit myself to its use on calipers, as described.

Having thus described my invention, what I claim is—

1. In a device of the character described, arms, a circular boss on one end of each arm and having a socket formed therein, a ring to receive the bosses, a coil-spring mounted in the sockets aforesaid, a pivot-pin secured centrally of the bosses and inclosed by the spring, and the arms formed with holes to receive the ends of the spring, substantially as shown and described.

2. In a device of the character described, arms pivotally secured together and having a spring in their joint to hold the arms normally in an open position, a pin swivelly secured to each arm, a threaded rod secured to one pin, the other pin formed with a transverse hole to receive the free end of the rod and a longitudinal threaded hole intercepting the transverse hole, a thumb-nut having a tubular shank engaging the threaded rod with a bearing fitting the transverse hole in the pin, and a set-screw engaging the longitudinal threaded hole and engaging the bearing of the tubular shank to lock the thumb-nut, substantially as shown and described.

In witness whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES A. MUZZIO.

Witnesses:

GEO. W. MATHIS,
A. H. WICKS.